

WHAT IS CLAIMED IS:

1. A fluid sampling device comprising:
 - a) a housing having a longitudinal axis;
 - b) a plurality of alternating sorbent units and spacer units disposed longitudinally through said housing and slidably movable therethrough along the longitudinal direction; and,
 - c) means for individually and sequentially exposing said sorbent units to the fluid.
2. The device of claim 1, wherein the sorbent units and spacer units each have an annular disk shape with an axial aperture and a respective thickness, the alternating sorbent units and spacer units being in a stacked arrangement wherein the respective axial apertures are aligned with the longitudinal axis of the housing.
3. The device of claim 2, further comprising a tube extending along the axis of the housing.
4. The device of claim 3, wherein the outer surface of the tube is threaded.
5. The device of claim 4, wherein the sorbent units and/or spacer units are in threaded engagement with the tube.
6. The device of claim 3, wherein the housing has at least one fluid inlet aperture positioned along a side of the housing and a fluid outlet disposed at an end of the housing in alignment with the axis of the housing.
7. The device of claim 6, wherein the tube has a hollow bore and at least one opening permitting fluid passage into the hollow bore, the at least one opening being aligned with the fluid inlet apertures positioned along the side of the housing, the opening in the tube and fluid inlet apertures being equidistant from the end of the housing.

8. The device of claim 6, wherein the fluid inlet has a diameter no larger than the thickness of the individual spacer units.

9. The device of claim 2, wherein the sorbent units have a diameter less than that of the spacer units.

10. The device of claim 2, wherein the sorbent unit comprises one or more sorbent modules, each sorbent module comprising one or more sorbent material.

11. The device of claim 10, wherein the sorbent module comprises an annular disk shaped module housing having an outer circumferential surface and an inner peripheral surface defining the axial aperture, said outer circumferential surface and inner peripheral surface having a plurality of openings, wherein said module housing encloses an annular interior space containing the sorbent material.

12. The device of claim 2, wherein the sorbent unit comprises one or more sorbent modules, each sorbent module comprising at least two different sorbent material.

13. The device of claim 10, wherein the sorbent module comprises a solid porous body of the sorbent material.

14. The device of claim 3, wherein the sorbent unit comprises one or more sorbent modules, each sorbent module comprising at least two different sorbent material.

15. The device of claim 1, wherein the housing has a substantially circular cross section.

16. The device of claim 1, wherein the housing has a substantially quadrangular cross section.

17. The device of claim 14, wherein the outer surface of the tube is threaded and wherein the sorbent units and/or spacer units are in threaded engagement with the tube.

18. The device of claim 1, wherein the housing is fabricated from metal, glass, or a synthetic polymer.

19. A method for sequential sampling a fluid over a period of time comprising:

(a) providing a fluid sampling device comprising:

(i) a housing having a longitudinal axis, the housing having at least one fluid inlet aperture positioned on the side of the housing and a fluid outlet positioned at an end of the housing; and,

(ii) a plurality of alternating sorbent units and spacer units disposed longitudinally through the housing in a stacked arrangement and slidably movable therethrough along the longitudinal direction;

(b) sequentially aligning individual sorbent units with the fluid inlet aperture, admitting a fluid through the fluid inlet aperture and moving the fluid through the aligned sorbent unit for a predetermined period of sampling time, then moving the stack of sorbent units and spacer units longitudinally through the housing to position a following individual sorbent unit into alignment with the fluid inlet aperture;

(c) desorbing adsorbed compounds in the fluid from the predetermined individual sorbent units; and,

(d) analyzing the desorbed compounds.

20. The method of claim 19, wherein the step of admitting fluid through the fluid inlet aperture comprises applying a vacuum to the fluid outlet.

21. The method of claim 19, wherein the step of desorbing the adsorbed

compounds comprises heating the sorbent units.

22. The method of claim 21, wherein the step of desorbing the adsorbed compounds further comprises passing an inert gas through the heated sorbent units in a sequential manner.

23. The method of claim 19, wherein the step of desorbing the adsorbed compounds comprises separating the sorbent units from the device and heating the individual sorbent units to facilitate desorption.

24. The method of claim 23, wherein the step of desorbing the adsorbed compounds further comprises passing an inert gas through the individual heated sorbent units.

25. The method of claim 19, wherein in the step of analyzing the desorbed compounds comprises gas chromatography, mass spectroscopy or pulse flame photometry.

26. The method of claim 23, wherein in the step of analyzing the desorbed compounds comprises gas chromatography, mass spectroscopy or pulse flame photometry.

27. The method of claim 19, wherein the device further comprises a tube extending along the axis of the housing.

28. The method of claim 27, wherein the tube is threaded.

29. The method of claim 28 wherein the sorbent units and/or spacer units are in threaded engagement with the tube.

30. The method of claim 19, wherein the housing of the device has a substantially quadrangular cross section.

31. The method of claim 19, wherein the sorbent units of the device comprises one or more sorbent modules, each sorbent module comprising at least two different sorbent material.

32. The method of claim 19, wherein the sorbent units of the device comprises one or more sorbent modules, each sorbent module comprising one or more sorbent material.